



International Trends in Documentation and Information Services

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AS HAS BEEN REPEATEDLY STATED, one of the major factors in the development of modern society is its tremendous scientific and technological progress. "Today we have reached an era when mankind is experiencing the most rapid and gigantic innovation in intellectual and technological achievements."¹ The rapidly growing number of scientists and other specialists actively engaged in national and international research and development programs, coupled with certain communication difficulties, creates a danger of wasteful duplication of efforts. And in fact, numerous examples of such duplication are well known. Both this fact and the constantly increasing needs of the world's scientific and technical community for quick access to the information required, as well as for its prompt evaluation and retrieval, make effective international cooperation in the field of scientific and technical information and documentation vitally important. "Basic to any effective cooperative programme is the need for mechanisms that enable diverse organizations at both national and international levels to contribute to a common programme."²

Looking at the international documentation and information activities one can clearly see two levels of organizations dealing with those activities: inter-governmental (UNESCO, etc.) and non-governmental (FID, ICSU, ISO, IFIP, IFLA, etc.). Each of the above-mentioned organizations (except UNESCO) is a professional body with an active program in a specific area of knowledge. To have a complete picture it is necessary to look at the following brief outline of all these organizations, their work and trends in their activities.

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International Trends in Documentation and Information Services
UNESCO (United Nations Educational, Scientific and Cultural Organization)

This organization has as one of its main tasks the promotion and coordination, both at the national and international level, of further development of documentation, libraries and archives. "From the outset, UNESCO has realized the importance of libraries and documentation in the promotion of mutual understanding and in the furthering of economic and social development."³

To advise the Director-General of UNESCO on general problems of documentation, as well as on those of particular interest to UNESCO, in 1966 the fourteenth session of the UNESCO General Conference established the International Advisory Committee on Documentation, Libraries, and Archives, which replaced the former International Advisory Committee on Bibliography, Documentation, and Terminology. After having carefully studied the current trends in the fields of documentation, libraries and archives the Committee recommended that priority be given to the following programs:

- 1) improvement in the planning of national, regional and international services;
- 2) training of personnel, using traditional and new methods;
- 3) establishment of common minimum standards for the use of traditional and new techniques and for vocational training programs; and
- 4) evaluation and use of new documentary techniques and in particular of data processing, considered as an essential instrument for the further development of documentation.

This important program is being implemented by the Department of Documentation, Libraries, and Archives composed of the Division for the Promotion of Research and International Co-operation in Documentation; Division for the Development of Documentation, Library and Archives Services; and finally, the UNESCO Library. projects currently undertaken by UNESCO are the following public. The Department aims its efforts at achieving a greater degree of standardization in bibliographical and documentation matters, promoting the application of mechanization and automation in library and documentation work. Mostly this is done through contracts with professional non-governmental organizations. Thus, among the major cations: *International Standardization of Library and Documentation*

Techniques and Minimum Standards for the Training of Library and Documentation Personnel (both prepared jointly by FID and IFLA); *Guide for an Introductory Course on Documentation*, *Guide for the Training of Documentation Users*, *Abstracting Services in Science, Technology, Medicine, Agriculture, Social Sciences and Humanities* (2nd edition), *Manual on the Application of Mechanization and Data Processing to Documentation and Library Work* (all four projects undertaken by FID); *Handbook on Library Statistics* and *Manual on Library Legislation* (both prepared by IFLA); and *Professional Training Programme for Archivists for Developing Countries* (prepared by ICA).

A special place in the UNESCO program is given to an important joint venture of UNESCO and ICSU. As it is known, in view of information retrieval problems caused by tremendous proliferation of scientific information, the 1966 ICSU General Assembly decided to set up a committee to study the feasibility of a world scientific information system. It was agreed that this world-wide system "should be a flexible network based upon the voluntary cooperation of existing and future information services."⁴

At its first session in December 1967, the Committee agreed to set up the following working groups: 1) on standards for the transfer of bibliographic data; 2) on indexing and classification problems; 3) on abstracting; 4) on international research on information science, on the information habits and needs of scientists, and the evaluation and compression of publications, and 5) a group representing major mechanized information systems (like Chemical Abstracts, MEDLARS, INIS—International Nuclear Information System, etc.). In July 1968 the Committee discussed the reports of these working groups and made a number of decisions concerning its future tasks.

Among other problems to be considered by the Committee are such important questions as standardization of terminology, linguistic aspects of mechanized information processing and transfer (key words, thesauri, controlled vocabularies, metalanguages), internationally acceptable abstracting forms and procedures, etc. It is envisaged to extend the studies of a world-wide information system, at present limited to natural sciences only, also to technology and other fields of learning. In carrying out this feasibility study both UNESCO and ICSU enjoy the cooperation of such professional international organizations as FID, the Abstracting Board of ICSU, ISO and others.

International Trends in Documentation and Information Services

UNESCO is represented on this joint Committee by its Department of Advancement of Science, while the Department of Documentation, Libraries, and Archives is not formally connected with the project. This makes one wonder as to whether it would not be more appropriate to combine all UNESCO documentation activities.

FID (Fédération Internationale de Documentation)

FID is the major international non-governmental organization actively engaged in the field of scientific and technical information and documentation. The main tasks of FID include the following:

- 1) coordination on an international level of the documentation activities;
- 2) elaboration of the basic problems of scientific information;
- 3) studies in the field of theoretical and operational aspects of machine techniques and systems;
- 4) survey and evaluation of linguistic and related studies with real or potential application to information processing;
- 5) classification research and standardization of classification terms;
- 6) coordination of the world-wide revision and expansion program of the UDC (Universal Decimal Classification);
- 7) studies and evaluation of communication forms used in providing information to industry;
- 8) promotion of training of documentalists; and
- 9) assistance in creating national information and documentation services in developing countries.

In addition to these tasks "in the past, FID has acted as a catalyst for cooperation of national and international organizations engaged in documentation activities. The needs of the time require an extension and refinement of these cooperative activities."⁵

Most of the FID activities are carried out through its study and special committees. A brief summary of the major current committee projects will indicate the documentation trends studied by the Federation.

The Study Committee on Research on the Theoretical Basis of Information (FID/RI) has among its major projects the preparation of an international thesaurus of scientific information terms.

The Study Committee on Classification Research (FID/CR) has the following projects: standardization of classification terms—this

project is carried out in close cooperation with ISO/TC 46; cooperation with the Groupe d'Etude sur l'Information Scientifique in France, in preparing a multilingual thesarus for information science to serve as a basis for a mechanized concordance among a growing number of individual indexing schemes; and collaboration with the Bibliographic Systems Center in Cleveland, Ohio, for operating an international collection of classification systems and thesauri, etc.

The Central Classification Committee (FID/CCC) is responsible for the operation, supervision, revision and further development of the UDC. This work is being done by the Committee itself and its nineteen UDC revision committees, each dealing with a separate field of science, technology, etc. Particular attention is being paid to the relocation and major revision in the humanities and class O, and a study is being made of the relational indicators in the Universal Decimal Classification (UDC).

The Study Committee on Linguistics in Documentation (FID/LD) is concerned with the study of linguistic problems involved in information systems.

The Committee's program includes conceptual and operational linguistic problems involved in information systems and related lexicographical problems. It will treat linguistics in the creation, improvement, and generalization of indexing and classification tools. It will also experiment with and evaluate linguistic techniques and solutions in documentation.

The Study Committee on the Theory of Machine Techniques and Systems (FID/TM) studies the problem of paperless communication and optimal information transfer in pictographic, written, and spoken transmission. Another problem, studied by the Committee members, is that dealing with concepts for systems design and synthesis.

The Study Committee on Operational Machine Techniques and Systems (FID/OM) has the following main projects: standardization of information storage formats for mechanical retrieval on the basis of the UDC; international exchange of information on the practical use of data processing systems in documentation; and elaboration of methods to be used for transition from manual to mechanical documentation systems.

The Study Committee on Information for Industry (FID/II) has among others the following projects: publication of national lists of technical journals for industry (these cover technical, scientific, economic and management journals of particular interest to industry,

International Trends in Documentation and Information Services

prepared in each country by the respective FID national member); a possible publication of an "International List of Technical Journals for Industry" or an "International Index" to such journals is envisaged; and further study of effective means of communicating scientific and technical information to industry.

The Study Committee for Training of Documentalists (FID/TD) is preparing the second edition of the *Guide to the World's Training Facilities in Documentation and Information Work* (for publication in 1969) and a list of textbooks in the major world languages for the training of documentalists.

The Special Committee on Developing Countries (FID/DC) is working on the following projects: a survey of the documentation activities and needs in developing countries; a study of reprography for documentation needs in developing countries; the preparation of a brochure on the role of documentation in developing countries; and the elaboration of proposals concerning documentation training in developing countries.

The FID program areas given above, clearly demonstrate a very important factor: the Federation activities cover not only theoretical problems but also practical ones, thus keeping the FID abreast of all modern developments in the field.

There is a strong need for the elaboration of the theory of scientific information and for further research in the methodological aspects of this very important field. The FID has taken the initiative in conducting basic research in scientific information through the FID/RI Committee.

The increasingly important role of computers in the information field is universally recognized and the FID/TM and FID/OM Committees bring the Federation closer to "on-line," "real-time" computerized information systems.

Despite serious efforts in various countries, no really fruitful results have been achieved in the inter-relation of information retrieval and linguistics. The FID/LD Committee, working with modern concepts of linguistics and information systems, may stimulate research and development in this area.

"The effectiveness of the entire system of scientific and technical information largely depends on the qualifications of the documentalists who, in the process of their work, should be aware of the latest achievements in science and technology, as well as the needs of the national economy. It is widely known that only competent information

specialists can assure a quick, comprehensive and up-to-date information service to the scientific and technical community, thus contributing to the success of many research and development projects.”⁶ The FID/TD Committee serves as a focal point for the Federation’s efforts not only in elaborating an internationally acceptable program for the training of information specialists and information users, but also in the practical implementation of this program. The 1967 International Conference on Education for Scientific Information Work, co-sponsored by the FID/TD, indicated major trends in this area.⁷

An effectively functioning information system is impossible without a good, regularly updated and revised classification system. This explains the importance attached by the FID to further development of the UDC, which, though it does not claim to be the perfect classification system, is the most widely used artificial indexing language for science and technology in the world. It has already been mentioned that concordance between the UDC and other, more special classification systems has been and is being established. It will be appropriate to mention here the very successful work performed in Denmark, the U.S.A., the U.S.S.R., and Western Germany concerning the use of the UDC in a computerized information system. R. R. Freeman and Pauline Atherton have demonstrated that the UDC can be used in an on-line, interactive system. Already existing conversion tables could make possible the searching of UDC-indexed files disregarding linguistic barriers.⁸ In September 1967, three FID Committees: FID/CCC, FID/CR and FID/OM, organized in Copenhagen an international seminar on UDC in a mechanized information retrieval system. The seminar proved beyond any doubt that the UDC can be used with computers.

The assistance to developing countries in establishing their national information services is among the major tasks of many international organizations. It is generally accepted that the FID/DC Committee has become a major body in this area by having conducted a number of successful meetings, as well as by having established useful working contacts with a considerable number of documentalists in developing countries.

More and more organizations and individual information specialists are devoting their time and energy to studies of the flow of scientific and technical information within industry. This constitutes one of the major tasks of the FID and is covered by the FID/II Committee which pays particular attention to the information needs of industry.

International Trends in Documentation and Information Services

The FID is following with great professional interest the work carried out under the joint ICSU-UNESCO feasibility study and has submitted some recommendations to the ICSU-UNESCO Central Committee. There is a strong conviction among FID members that the Federation could contribute to this project in a number of ways. For example, "By using the UDC it would be possible to make a detailed scope analysis of all the projects currently under way or planned at various information centres in the world, to evaluate interrelation of subjects covered by these centres and, finally, to indicate overlaps of interests, between these centres."⁹ Reporting to the ICSU Executive Committee on the feasibility study, Harrison Brown, Chairman of the ICSU-UNESCO Central Committee, said that: "the purpose of the study is to promote compatibility among the science information systems being created in many countries and in several disciplines."¹⁰ The FID is aiming at reaching such a compatibility by establishing a concordance between the UDC (as the most used classification system in the world) and other classification schemes (such a project has been successfully carried out with the International Institute of Welding and another one is being negotiated with the Council of Europe concerning the International Patent Classification).

Present needs for easy and quick access to the information needed require concerted actions of all international organizations active in the field of scientific and technical information and documentation. The FID is well aware of the fact, and effective cooperation with more than fifty international governmental and non-governmental organizations is among the major tasks of the Federation. Close working contacts exist, as mentioned earlier, between FID and UNESCO, ICSU and its Abstracting Board, IFLA, ISO, IFIP, CIB (International Council for Building Research, Studies and Documentation) and many others. Of special interest in this context is the need for growing cooperation between the FID and IFLA, especially in such areas as training, assistance to developing countries, mechanization, terminology, classification, and reprography. As W. K. Lowry said: "it is imperative that IFLA and FID must work in concert to avoid dilution of our total resources in working toward common goals."¹¹

ICSU (International Council of Scientific Unions)

ICSU is a truly international forum for the world scientific community. Through its member unions it represents both producers and

users of scientific information. In 1966 ICSU embarked, jointly with UNESCO, on an extremely important project concerning the communication of scientific information. The study on the feasibility of a world science information system has been described earlier.

ICSU A.B. (ICSU Abstracting Board) is a rather special body within the ICSU general framework. Its principal functions include the coordination and improvement of abstracting of the world scientific literature. Among the projects recently completed by ICSU A.B. is the comparative study of the major abstracting and indexing services in 1965, covering physics, chemistry and biology. At present ICSU A.B. activities cover only physics, chemistry and biology, however, the coverage of other fields is envisaged. A number of studies are carried out, including users' needs and standardization of abstracts, which will be a major step towards mechanization of abstracting work. There is an urgent need for a study on the standardized input and output formats to achieve more effective interchange among various abstracting and indexing services. The 1968 Meeting of ICSU A.B. indicated a strong feeling among the membership in favor of extending the scope of the organization. The existing contacts between ICSU A.B. and FID is a good basis for an effective cooperation among the primary and secondary information services.

ISO (International Organization for Standardization)

This organization was set up to promote the development of standards in the world; a task of vital importance to the entire information and library community. One notes with pleasure that ISO, in close working cooperation with such bodies as UNESCO, ICSU, FID, IFIP, and IFLA, is aiming at achieving the highest possible degree of uniformity in the present, rather confused, world of documentation and librarianship. To give a general idea of a very large amount of work done by ISO through its almost 120 technical committees it might be useful to mention that ISO has already adopted more than 800 recommendations while more than 900 draft recommendations are being studied. The standardization work in the area of our professional interests is done by the following ISO technical committees: TC/37—Terminology (principles and coordination), TC/46—Documentation (with sub-committees on documentary reproduction and on conversion of written languages), and TC/97—Computers and Information Processing (with sub-committees on vocabulary, char-

International Trends in Documentation and Information Services

acter sets and coding, character recognition, input/output, programming languages, digital data transmission, problem definition and analysis, and numerical control of machine tools).

With all esteem for the extremely valuable and extremely complex work done by ISO, one cannot but hope for a reduction of the time required (which, unfortunately, is quite substantial at present), for the preparation and adoption of the ISO recommendations.

IFIP (International Federation for Information Processing)

IFIP is working towards increased international understanding of the role that information processing can and must play in accelerating scientific and technological progress. IFIP has an active program of studies, which are carried out by its technical committees. Technical Committee 1, in collaboration with ISO, is engaged in establishing a standard terminology for computers and data processing. In close contact with the International Computation Centre it is producing a multilingual vocabulary of information processing concepts and terms. Technical Committee 2 is concerned with the development of new international programming languages and with the improvement of the existing ones. This is extremely important especially in view of the present proliferation of computer languages. Technical Committee 3 is working on the preparation of programs for training in modern data processing techniques. The recently created Administrative Data Processing Group is to promote and coordinate research, education and exchange of experience in information processing as applied to organizational, economic and administrative problems. IFIP has effective working contacts with IFAC (International Federation for Automatic Control) and FID, with which it had a joint international Conference on Mechanized Information Storage, Retrieval, and Dissemination in 1967. The Conference served as a forum for an international exchange of ideas on man-machine interface.¹²

This paper has attempted to indicate some of the major trends in the documentation and information work as seen through the activities of the principal international organizations with active information programs. There was no special attention given to IFLA because some of its major activities have been mentioned in various paragraphs of the present article, and because the topic of the article does not include libraries as such.

In conclusion it might be appropriate to briefly indicate some prob-

lems of major interest to documentation and information work, which for various reasons have not been sufficiently covered by the international organizations.

With reference to the ICSU-UNESCO study on the feasibility of a world science information system (or rather a world network of science information systems), the following problems have arisen:

- 1) The study needs to be extended to cover not only natural science but also technology, medicine, agriculture, etc. This would bring the project closer to developing countries, thus contributing to their further development.

- 2) A world-wide network of information systems should be based on the principle of compatibility among these systems. In view of serious difficulties with regard to compatibility and interface, and hardware-software requirements in various systems, the problem of standardization must be of the highest priority. This makes it imperative not only to concentrate the efforts of all the international organizations involved but also to work out procedures for a quick elaboration and international adoption of the standards.

The problem of compatibility among the individual systems comprising the proposed future world information network is already of great importance since we are presently witnessing creation of international information systems covering specific fields of knowledge. This trend can be seen in medicine (MEDLARS with its new European centers in Great Britain and Sweden and additional ones envisaged by other countries); nuclear energy (INIS—International Nuclear Information System—being established by the International Nuclear Energy Agency in Vienna); and others.

- 3) Serious attention should be given to the problems of machine abstracting and indexing and automatic text reading. Some problems could be solved by the use of abstracts as sources of index terms. The problem of machine indexing is inter-connected with the problem of machine translation. This brings us to "the language barrier," so much discussed in the professional and non-professional literature. According to UNESCO, 50 per cent of the world's scientific and technical literature is published at present in languages unknown to more than 50 per cent of the world's scientific community. There seems to be only one solution—machine translation based on an intermediary language. Since this will undoubtedly require enormous efforts over a long period of time, it should be

International Trends in Documentation and Information Services

carried out under the auspices of such a powerful organization as UNESCO.

4) The problem of training an adequate number of well-qualified information specialists is extremely important. An international effort is necessary to set up not only training programs where there are none but also to coordinate the existing ones and to bring them to at least some uniformity. Speaking about training, one must not forget the necessity of educating the users of information. This indicates one more problem—a need for serious research work concerning information needs and habits of the world's scientific and technical community.

These and other problems can and should be solved by joint efforts of all relevant international organizations. It is necessary in this context to point out certain dangers of proliferation of international organizations in the field of information and documentation. This danger can be avoided by carefully planned and well coordinated activities at the international level, since only by combining our efforts can we contribute to the continuing progress of science and technology in the world.

References

1. "Statement on a New FID Programme to Meet Changing Information Patterns." The Hague, FID, 1966, pp. 2-3.
2. *Ibid.*, p. 7.
3. Gjesdal, Tor. "UNESCO's Documentation Activities," *FID News Bulletin*, 17:2, 1967.
4. ICSU-UNESCO. "Joint ICSU/Unesco Working Party on the Communication of Scientific Information and on the Feasibility of a World Scientific Information System, Unesco, Paris, 18-20, January 1967" (ICSU/UNESCO WP/CSI 1.8). March 13, 1967, p. 2.
5. "Statement on a New FID Programme to Meet changing Information Patterns," *ibid.*, p. 7.
6. Sviridov, Felix A. "Scientific Information Services in the Soviet Union." In A. deReuck and J. Knight, eds. *Communication in Science: Documentation and Automation*. London, Churchill Ltd., 1967, p. 192.
7. *International Conference on Education for Scientific Information Work*. The Hague, FID, 1967.
8. Freeman, R. R. and Atherton, Pauline. "AUDACIOUS—An Experiment with an On-line, Interactive Reference Retrieval System Using the UDC as the Indexing Language in the Field of Nuclear Science" (AIP/UDC-7). New York, American Institute of Physics, April 25, 1968.
9. Sviridov, Felix A. "FID and Its Possible Contribution to the Study of the Feasibility of a World Science Information System." (Statement at the First

Session of the ICSU/UNESCO Central Committee to Study the Feasibility of a World Science Information System, Unesco House, Dec. 6-8, 1967). The Hague, FID, Dec. 4, 1967, p. 2.

10. Brown, Harrison. "Report on the World-Wide Science Information System." (Report by the Convenor of the Joint ICSU-UNESCO Working Group to the ICSU Executive Committee, Sept. 21, 1967), p. 2.

11. Lowry, W. K. "Address by W. K. Lowry, President of FID on the Occasion of the 33rd Conference of IFLA, Toronto, Aug. 1967." The Hague, FID, Oct. 9, 1967, p. 1.

12. "Mechanized Information Storage, Retrieval, and Dissemination." In Kjell Samuelson, ed. *Proceedings of the FID/IFIP Joint Conference, Rome, June 14-17, 1967*. Amsterdam, North-Holland Publishing Company, 1968.